

Applicants : Iris Bahir & Shmuel Ben-Sasson

Atty. Dkt. No.: 1120-PCT-US

USPN : 10/550,870

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### Amendments To The Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-24. (Cancelled)

25. (Currently Amended) A method for generating the generation—of genetically diverse plants via incorporation of exogenous micro-satellite (MS) sequences into the plant genome, ~~wherein said plants are of the same species, and~~ said method comprises the following steps:

- (a) obtaining MS-like DNA fragments comprising a monotonous repeat of two to six nucleotides;
- (b) introducing said DNA fragments into plant cells;
- (c) selecting the plant cells containing said DNA fragments; and
- (d) cultivating the selected plant plants ~~grown from the selected cells, thereby generating genetically diverse plants under suitable conditions.~~

26. (Withdrawn) The method of claim 25, wherein said MS-like DNA fragment comprises a monotonous repeat of one to six nucleotides and is at least twelve nucleotides in length.

27. (Withdrawn) The method of claim 25, wherein said MS-like DNA fragment comprises a sequence that is at least 70% homologous to a monotonous repeat of one to six nucleotides and is at least twelve nucleotides in length.

28. (Withdrawn) The method of claim 26, wherein said repeat is any one of A/T, AT/TA, AG/CT, AAG/CTT, CGG/CCG,

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ATCG/CGAT, AAAT/ATTT, AAGTTC/GAACTT, CTG/CAG, TTTA/TAAA,  
CT/AG and TTC/GAA.

29. (Withdrawn) The method of claim 27, wherein said repeat is any one of A/T, AT/TA, AG/CT, AAG/CTT, CGG/CCG, ATCG/CGAT, AAAT/ATTT, AAGTTC/GAACTT, CTG/CAG, TTTA/TAAA, CT/AG and TTC/GAA.
30. (Currently Amended) The method of claim 25, wherein optionally the MS-like DNA fragments obtained in step (a) are ligated into suitable vectors and then proceed to step (b).
31. (Currently Amended) The method of claim 25, wherein the exogenous MS is preferably introduced concomitantly with a selective marker.
32. (Previously presented) The method of claim 31, wherein the selective marker is a gene that confers resistance to an antibiotic, a herbicide or a metabolic inhibitor.
33. (Currently Amended) The method of claim 32, wherein the selective marker is preferably a kanamycin resistant gene.
34. (Withdrawn) The method of claim 25, wherein the MS-like DNA fragment further includes in tandem a unique identifiable sequence that enables specific tagging of the incorporated DNA.
35. (Withdrawn) The method of claim 25, wherein the MS-like DNA fragment is introduced into individual plant cells.

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36. (Withdrawn) The method of claim 35, wherein the individual cells are cultivated to give rise to individual plants.
37. (Withdrawn) The method of claim 25, wherein said MS-like DNA fragment is introduced into any one of a plant embryo, a plant tissue or callus, or a leaf, which are then subsequently disintegrated into individual plant cells.
38. (Withdrawn) The method of claim 37, wherein the individual cells are cultivated to give rise to individual plants.
39. (Currently Amended) The method of claim 25, wherein said MS-like DNA fragment is introduced via any one of electroporation, chemical, mechanical means or liposomes.
40. (Currently Amended) The method of claim 25, wherein said MS-like DNA fragment is introduced by a genetic vehicle ~~such as~~ selected from the group consisting of a plasmid or and a viral vector.
41. (Currently Amended) The method of claim 25, wherein said MS-like DNA fragment is obtained via synthesis or cloning.
42. (Currently Amended) The method of claim 25, wherein said ~~exogenous~~ MS-like DNA fragments are ~~sequence~~ is produced by the ligation of several DNA pieces.
43. (Previously presented) The method of claim 25, wherein the generation of new plant varieties or genetically

diverse plants further includes the generation of one of cells, seeds or progeny of said plants.

44. (Previously presented) A plant variety produced by the method of claim 25, and cells, seeds and progeny thereof.
45. (Withdrawn) A method for the generation of new plant varieties using MS-like fragments, said method comprising the steps of:
- (a) obtaining MS-like DNA fragments;
  - (b) introducing said DNA fragments into plant cells;
  - (c) selecting the plant cells containing said DNA fragments;
  - (d) cultivating the plants grown from the selected cells, under suitable conditions.
46. (Withdrawn) The method of claim 45, wherein the generation of new plant varieties or genetically diverse plants further includes the generation of one of cells, seeds or progeny of said plants.
47. (Withdrawn) A plant variety produced by the method of claim 45 and cells, seeds and progeny thereof.
48. (Withdrawn) A new plant variety generated by the introduction of MS-like DNA fragments into its genome, and cells, seeds and progeny thereof.